



October 18, 2021

Benjamin McPherson, P.E.  
Professional Engineer 1 (Environmental)  
Division of Environmental Remediation  
New York State Department of Environmental Conservation  
270 Michigan Avenue  
Buffalo, New York 14203

Subject:           Sampling Activity Summary – Post Fire Investigation  
                  Riverview Innovation & Technology Campus  
                  3875 River Road  
                  Town of Tonawanda, New York  
                  Site No. C9153353

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Dear McPherson,

Following the fire of August 10, 2021, Riverview Innovation & Technology Campus (Riverview), Inventum Engineering, P.C. (Inventum), OSC, and the New York State Department of Environmental Conservation (NYSDEC) conducted a series of investigations and analyses to determine what caused the event and what impacts, if any, have resulted. The fire occurred on the containment pad constructed using, in part, the former bag house slab (Figure 1). The fire companies that responded to the fire used water and a non-fluorine foam as part of the firefighting effort. The runoff from the fire was routed (Figure 1) to the east quench pit to prevent any discharge to the storm or sanitary sewer systems.

The manufacturer of the foaming agent product indicated the product does not result in the production of any Per- and polyfluoroalkyl substances (PFAS) including Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA). The NYSDEC requested testing to confirm the manufacturer's statement. Samples were collected on August 23, 2021 in accordance with the August 20, 2021 approved work plan.

Inventum collected four samples from the location of the fire and resulting water management (Figure 1). A summary of the data is described below and tabulated in Tables 1 and 2. The laboratory data report from Alpha Analytical of Westborough, MA is provided as Attachment A.

### **Data Summary**

Two soil samples (SS-FIREINV-01-08232021 and SS-FIREINV-02-08232021) were collected along the likely surface water flow path(s) between the fire and the east quench pit. Samples were collected from 0 to 6-inches below ground surface (bgs) at each location and analyzed for Target Analyte List (TAL) Metals (EPA Method 6010D), Total Cyanide (Method 4500CN-CE), PFASs (EPA Method Mod 537.1), and PFAS via the Synthetic Precipitation Leaching Procedure (SPLP) (EPA Method 1312/Mod 537.1). In accordance with the work plan, samples were also submitted for TOP Assay analysis;

however, the samples were unable to be oxidized due to matrix interferences. The narrative in the data report (Attachment A) describes the procedures the laboratory undertook to try and complete the TOP Assay. After consultation with the laboratory and NYSDEC, it was agreed that a SPLP/PFAS analysis of the soil samples would be conducted outside of the recommended holding time in lieu of the TOP Assay.

The soil sample from SS-FIREINV-01 contained a concentration of Arsenic (19.9 milligrams per kilogram [mg/kg]) above the Part 375 Commercial Use Soil Cleanup Objective (SCO) of 16 mg/kg. There were no exceedances of the proposed Commercial Use SCO<sup>1</sup> for PFOS or PFOA in either soil sample and no exceedances of the PFOS or PFOA Class GA groundwater screening value of 10 nanograms per liter (ng/L) in the SPLP leachate.

One sample of the pipe residual solids in the east quench pit was collected (Table 1; SS-FIRE-ENV-03-08232021) and analyzed for TAL Metals, Total Cyanide, and PFAS. The sample was collected by scraping the inside of a Coke Oven Gas (COG) pipe that had been quenched with water and placed in the pit. Like the two soil samples, a TOP Assay was unable to be completed on the residual material due to matrix interferences. The residual solids in the quench pit will be addressed in accordance with the *Coke Oven Gas Pipe and Coke Oven Gas Pipe Residuals Interim Remedial Measures Work Plan* (COG IRM WP).

One water sample from the east quench pit was collected (Table 2) and analyzed for TAL Metals, Total Cyanide, and PFAS. The sample contained several metals (Iron, Lead, Magnesium, Manganese, Mercury, Sodium, and Thallium [estimated]) above the Class GA groundwater standards/guidance values. The sample also contained Cyanide and PFOS above their respective standard or screening value. PFOS was detected at an estimated maximum concentration of 18.4 ng/L above the screening value of 10 ng/L.

The quench water is contained and will be managed in accordance with an approved discharge authorization from the Town of Tonawanda and the COG IRM WP.

## Recommendations

The data do not indicate an impact from the firefighting effort and foam application requiring an IRM response other than already addressed in the approved COG IRM WP.

The soils data will be included in the forthcoming Remedial Investigation Report for the Brownfield Cleanup Program Site (Site No. C9153353) and any response, if required, will be addressed within the Alternatives Analysis and selected remedial measure(s).

Please let us know questions or comments.

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<sup>1</sup> NYSDEC. Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs. June 2021.



Sincerely yours,

A handwritten signature in blue ink, appearing to read "Todd Waldrop", is displayed on a light gray rectangular background.

Todd Waldrop  
Partner

Attachments

CC: Angela Martin, NYSDOH  
John Yensan, OSC  
Brandon Mikolin, GES  
Rich Galloway, Honeywell



## Tables





Table 1  
 Fire Residual Investigation  
 Post-Fire Sampling Data Summary - Solids  
 Riverview Innovation Technology Campus BCP Site  
 Tonawanda, NY

Analytes (a)	Sample ID:		SS-FIREINV-01-08232021	SS-FIREINV-02-08232021	SD-FIREINV-03-08232021
	Comparative Standards (a)	Description:	Fire Residual Soil Sample 01	Fire Residual Soil Sample 02	Fire Residual Material from Coke Oven Gas Pipe
		Units	8/23/2021	8/23/2021	8/23/2021
<b>TAL Metals (b)</b>					
Aluminum	-	mg/kg	6540	1640	302
Antimony	-	mg/kg	3.01 J	1.63 J	7.68 J
Arsenic	16	mg/kg	19.9	6.62	31.3
Barium	400	mg/kg	101	36.7	2.27
Beryllium	590	mg/kg	0.566	0.178 J	<-0.936 U
Cadmium	9.3	mg/kg	<1.13 U	<1.04 U	<-1.87 U
Calcium	-	mg/kg	23800	6020	2650
Chromium	-	mg/kg	58.4	23.8	147
Cobalt	-	mg/kg	6.52	2.36	8.73
Copper	270	mg/kg	106	58.9	5.41
Iron	-	mg/kg	26800	15300	710000
Lead	1000	mg/kg	177	61.9	79.8
Magnesium	-	mg/kg	3220	852	846
Manganese	10000	mg/kg	375	147	6850
Mercury	2.8	mg/kg	2.42	0.362	1080
Nickel	310	mg/kg	30.1	17.8	22.2
Potassium	-	mg/kg	1070	204 J	<468 U
Selenium	1500	mg/kg	1.9 J	0.868 J	<-3.75 U
Silver	1500	mg/kg	<1.13 U	<1.04 J	1.68 J
Sodium	-	mg/kg	619	98.4 J	65.8 J
Thallium	-	mg/kg	<2.26 U	<2.09 U	4.27
Vanadium	-	mg/kg	16.1	4.46	305
Zinc	10000	mg/kg	260	85.4	50
<b>General Chemistry (b)</b>					
Total Solids		%	67.9	72.4	40.6
Cyanide	27	mg/kg	5	1.6	320



Table 1  
 Fire Residual Investigation  
 Post-Fire Sampling Data Summary - Solids  
 Riverview Innovation Technology Campus BCP Site  
 Tonawanda, NY

Analytes (a)	Sample ID: SS-FIREINV-01-08232021		SS-FIREINV-02-08232021	SD-FIREINV-03-08232021
	Comparative Standards (a)	Description:	Fire Residual Soil Sample 01	Fire Residual Soil Sample 02
		Units	8/23/2021	8/23/2021
<b>Perfluorinated Alkyl Acids (PFAS) (c)</b>				
Perfluorobutanoic Acid (PFBA)	-	ng/g	0.307 J	<1.16 U
Perfluoropentanoic Acid (PFPA)	-	ng/g	0.696 J	0.34 J
Perfluorobutanesulfonic Acid (PFBS)	-	ng/g	<0.715 U	<0.580 U
1H, 1H, 2H, 2H-Perfluorohexanesulfonic Acid (4:2FTS)	-	ng/g	-2.86 U	<2.32 U
Perfluorohexanoic Acid (PFHxA)	-	ng/g	0.64 J	0.305 J
Perfluoropentanesulfonic Acid (PFPeS)	-	ng/g	-2.86 U	<2.32 U
Perfluoroheptanoic Acid (PFHpA)	-	ng/g	0.266 J	0.186 J
Perfluorohexanesulfonic Acid (PFHxS)	-	ng/g	<0.715 U	<0.580 U
Perfluorooctanoic Acid (PFDA)	500	ng/g	0.369 J	0.132 J
1H, 1H, 2H, 2H-Perfluorooctanesulfonic Acid (6:2FTS)	-	ng/g	-1.43 U	0.475 J
Perfluoroheptanesulfonic Acid (PFHpS)	-	ng/g	-1.43 U	<1.16 U
Perfluorononanoic Acid (PFNA)	-	ng/g	<0.715 U	<0.580 U
Perfluorooctanesulfonic Acid (PFOS)	440	ng/g	<0.715 U	<0.580 U
Perfluorodecanoic Acid (PFDA)	-	ng/g	<0.715 U	<0.580 U
1H, 1H, 2H, 2H-Perfluorodecane sulfonic Acid (8:2FTS)	-	ng/g	-1.43 U	<1.16 U
Perfluorononanesulfonic Acid (PFNS)	-	ng/g	-2.86 U	<2.32 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMFOsAA)	-	ng/g	-1.43 U	<1.16 U
Perfluoroundecanoic Acid (PFUnA)	-	ng/g	-1.43 U	<1.16 U
Perfluorodecane sulfonic Acid (PFDS)	-	ng/g	-1.43 U	<1.16 U
Perfluorooctanesulfonamide (FOSA)	-	ng/g	-1.43 U	<1.16 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NMEFOsAA)	-	ng/g	-1.43 U	<1.16 U
Perfluorododecanoic Acid (PFDoA)	-	ng/g	-1.43 U	<1.16 U
Perfluorotridecanoic Acid (PFTriA)	-	ng/g	-1.43 U	<1.16 U
Perfluorotetradecanoic Acid (PFTA)	-	ng/g	-1.43 U	<1.16 U



Table 1  
Fire Residual Investigation  
Post-Fire Sampling Data Summary - Solids  
Riverview Innovation Technology Campus BCP Site  
Tonawanda, NY

Analytes (a)	Sample ID: SS-FIREINV-01-08232021		SS-FIREINV-02-08232021	SD-FIREINV-03-08232021
	Comparative Standards (a)	Description:	Fire Residual Soil Sample 01	Fire Residual Soil Sample 02
		Units	8/23/2021	8/23/2021
<b>SPLP/Perfluorinated Alkyl Acids (PFAS) (d,e)</b>				
Perfluorobutanoic Acid (PFBA)	-	ng/L	10.1	2.84
Perfluoropentanoic Acid (PFPA)	-	ng/L	37	21
Perfluorobutanesulfonic Acid (PFBS)	-	ng/L	0.446 J	<1.84 U
1H, 1H, 2H, 2H-Perfluorohexanesulfonic Acid (4:2FTS)	-	ng/L	<1.81 U	<1.84 U
Perfluorohexanoic Acid (PFHxA)	-	ng/L	21.5	13.1
Perfluoropentanesulfonic Acid (PFPeS)	-	ng/L	<1.81 U	<1.84 U
Perfluoroheptanoic Acid (PFHpA)	-	ng/L	8.02	4.09
Perfluorohexanesulfonic Acid (PFHxS)	-	ng/L	<1.81 U	<1.84 U
Perfluorooctanoic Acid (PFDA)	10	ng/L	1.72 J	0.655 J
1H, 1H, 2H, 2H-Perfluorooctanesulfonic Acid (6:2FTS)	-	ng/L	<1.81 U	<1.84 U
Perfluoroheptanesulfonic Acid (PFHpS)	-	ng/L	<1.81 U	<1.84 U
Perfluorononanoic Acid (PFNA)	-	ng/L	0.315 J	<1.84 U
Perfluorooctanesulfonic Acid (PFOS)	10	ng/L	<1.81 U	<1.84 U
Perfluorodecanoic Acid (PFDA)	-	ng/L	<1.81 U	<1.84 U
1H, 1H, 2H, 2H-Perfluorodecanesulfonic Acid (8:2FTS)	-	ng/L	<1.81 U	<1.84 U
Perfluorononanesulfonic Acid (PFNS)	-	ng/L	<1.81 U	<1.84 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	-	ng/L	<1.81 U	<1.84 U
Perfluoroundecanoic Acid (PFUnA)	-	ng/L	<1.81 U	<1.84 U
Perfluorodecanesulfonic Acid (PFDS)	-	ng/L	<1.81 U	<1.84 U
Perfluorooctanesulfonamide (FOSA)	-	ng/L	<1.81 U	<1.84 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	-	ng/L	<1.81 U	<1.84 U
Perfluorododecanoic Acid (PFDoA)	-	ng/L	<1.81 U	<1.84 U
Perfluorotridecanoic Acid (PFTriDA)	-	ng/L	<1.81 U	<1.84 U
Perfluorotetradecanoic Acid (PFTA)	-	ng/L	<1.81 U	<1.84 U

a/ Detections or estimated detections are noted in bold font. Green highlighted results indicate exceedance of soil standard shown. Fire residual materials (SD-FIREINV-03) are representative of materials contained in the east quench pit, are considered a waste, and are not compared to the soil standards.

b/ Part 375 Commercial Use SCO.

c/ Proposed Part 375 Commercial Use Soil Cleanup Objectives.

d/ PFAS analysis via the Synthetic Precipitation Leaching Procedure (SPLP) was completed at the request of the NYSDEC. Analysis was performed outside of recommended sample holding times with the approval of the NYSDEC.

e/ PFAS Groundwater Quality Screening Values from *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS)*. NYSDEC. June 2021

U = not detected above reporting limit shown; J= estimated value. Results above MDL but below RL

mg/L = milligrams per liter; ug/L = micrograms per liter; mg/kg = milligrams per kilogram; ug/kg = micrograms per kilograms; ug/g = micrograms per gram;

btm; lb = british thermal units per pound

.. denotes absence of a proposed standard or sample was not analyzed for corresponding analyte.



Table 2  
Fire Residual Investigation  
Post-Fire Sampling Data Summary - Aqueous  
Riverview Innovation Technology Campus BCP Site  
Tonawanda, NY

Analytes (a)	Sample ID: AO-FIRE/INV-04-08232021	
	Comparative Standards (where applicable)	Description: Fire Residual Water Sample Quench Pit
		Units
<b>TAL Metals (b)</b>		
Aluminum	-	mg/L 2.74
Antimony	0.003	mg/L <0.050 U
Arsenic	0.025	mg/L 0.021
Barium	1	mg/L 0.112
Beryllium	0.003	mg/L <0.005 U
Cadmium	0.005	mg/L <0.005 U
Calcium	-	mg/L 227
Chromium	0.05	mg/L 0.023
Cobalt	-	mg/L 0.008 J
Copper	0.2	mg/L <0.010 U
Iron	0.3	mg/L 68.7
Lead	0.025	mg/L 0.047
Magnesium	35	mg/L 40.3
Manganese	0.3	mg/L 6.69
Mercury	0.0007	mg/L 0.8833
Nickel	0.1	mg/L 0.029
Potassium	-	mg/L 51.1
Selenium	0.01	mg/L <0.010 U
Silver	0.05	mg/L <0.007
Sodium	20	mg/L 47.2
Thallium	0.005	mg/L 0.003 J
Vanadium	-	mg/L <0.010 U
Zinc	2	mg/L 0.194
<b>General Chemistry (b)</b>		
Cyanide	0.2	mg/L 1.97
<b>Perfluorinated Alkyl Acids (PFAS) (c)</b>		
Perfluorobutanoic Acid (PFBA)	-	ng/L 27.7
Perfluoropentanoic Acid (PFPeA)	-	ng/L 9.56 G
Perfluorobutanesulfonic Acid (PFBS)	-	ng/L 6.18 F
1H, 1H, 2H, 2H-Perfluorohexanesulfonic Acid (4:2FTS)	-	ng/L 1.8 JF
Perfluorohexanoic Acid (PFHxA)	-	ng/L 22.8
Perfluoropentanesulfonic Acid (PFPeS)	-	ng/L 6.74
Perfluoroheptanoic Acid (PFHpA)	-	ng/L 5.2
Perfluorohexanesulfonic Acid (PFHxS)	-	ng/L <1.94 U
Perfluorooctanoic Acid (PFOA)	10	ng/L 6.8
1H, 1H, 2H, 2H-Perfluorooctanesulfonic Acid (6:2FTS)	-	ng/L <1.94 U
Perfluoroheptanesulfonic Acid (PFHpS)	-	ng/L <1.94 U
Perfluorononanoic Acid (PFNA)	-	ng/L 0.963 JF
Perfluorooctanesulfonic Acid (PFOS)	10	ng/L 18.4 F
Perfluorodecanoic Acid (PFDA)	-	ng/L 0.839 J
1H, 1H, 2H, 2H-Perfluorodecane sulfonic Acid (8:2FTS)	-	ng/L <1.94 U
Perfluoronanesulfonic Acid (PFNS)	-	ng/L <1.94 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	-	ng/L <20 U
Perfluoroundecanoic Acid (PFUnA)	-	ng/L 0.357 J
Perfluorodecane sulfonic Acid (PFDS)	-	ng/L <1.94 U
Perfluorooctanesulfonamide (FOSA)	-	ng/L <1.94 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	-	ng/L <1.94 U
Perfluorododecanoic Acid (PFDoA)	-	ng/L <1.94 U
Perfluorotridecanoic Acid (PFTDA)	-	ng/L <1.94 U
Perfluorotetradecanoic Acid (PFTA)	-	ng/L <1.94 U

a/ Detections or estimated detections are noted in bold font. Green highlighted results indicate exceedance of standard shown.

b/Class GA Ambient Groundwater Quality Standard/Guidance Value

c/ PFAS Groundwater Quality Screening Values from Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS). NYSDEC. June

2021

U = not detected above reporting limit shown; J= estimated value. Results above MDL but below RL

mg/L = milligrams per liter; ug/L = micrograms per liter; mg/kg = milligrams per kilogram; ug/kg = micrograms per kilograms; ug/g = micrograms per gram; btu/lb = british thermal units per pound



## Figures





DIRECTION OF FIRE PROTECTION WATER FLOW TO EAST QUENCH SUMP

FORMER BAG HOUSE SLAB LOCATION OF FIRE

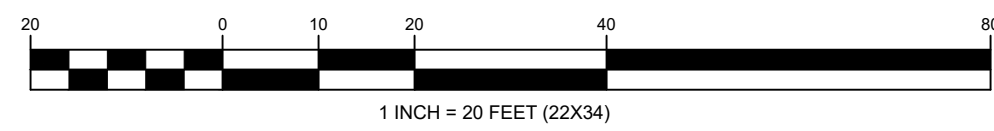
EAST COKE WHARF

FIRE RESIDUAL SOIL SAMPLE 01

FIRE RESIDUAL SOIL SAMPLE 02

FIRE RESIDUAL MATERIAL AND WATER SAMPLE LOCATION

EAST QUENCH PIT



D



**POST-FIRE PFAS SAMPLING SUMMARY**

RIVERVIEW INNOVATION & TECHNOLOGY  
 CAMPUS, INC.  
 3875 RIVER ROAD  
 TONAWANDA, NEW YORK 14150  
 BCP SITE No. C913353

**INVENTUM ENGINEERING**  
 481 CARLISLE DRIVE  
 SUITE 202  
 HERNDON, VIRGINIA 20170  
 (703) 722-6049  
 www.InventumEng.com

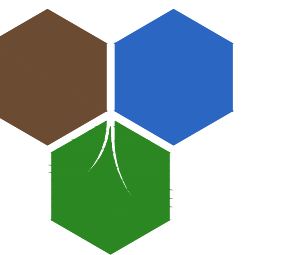


FIGURE 1

DRAWING NUMBER  
 PFASSUM-F1

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CHECKED

APPROVED

PROPERTY OF INVENTUM ENGINEERING  
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## Attachment A – Laboratory Data Reports



JOB: L2145604      REPORT STYLE: Data Usability Report  
0010: Alpha Analytical Report Cover Page - OK  
0015: Sample Cross Reference Summary - OK  
0060: Case Narrative - OK  
0180: Semivolatiles Cover Page - OK  
0190: Semivolatiles Sample Results - OK  
0200: Semivolatiles Method Blank Report - OK  
0210: Semivolatiles LCS Report - OK  
0230: Semivolatiles Matrix Spike Report - OK  
0240: Semivolatiles Duplicate Report - OK  
1005: Metals Sample Results - OK  
1010: Metals Method Blank Report - OK  
1020: Metals LCS Report - OK  
1040: Metals Matrix Spike Report - OK  
1050: Metals Duplicate Report - OK  
1060: Metals Serial Dilution Report - OK  
1180: Inorganics Cover Page - OK  
1200: Wet Chemistry Sample Results - OK  
1210: Wet Chemistry Method Blank Report - OK  
1220: Wet Chemistry LCS Report - OK  
1240: Wet Chemistry Matrix Spike Report - OK  
1250: Wet Chemistry Duplicate Report - OK  
5100: Sample Receipt & Container Information Report - OK  
5150: PFAS Parameter Summary - OK  
5200: Glossary - OK  
5400: References - OK

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## ANALYTICAL REPORT

Lab Number:	L2145604
Client:	Inventum Engineering 481 Carlisle Drive #202 Herndon, NY 20170
ATTN:	Todd Waldrop
Phone:	(571) 752-6562
Project Name:	RITC
Project Number:	POST FIRE PFAS
Report Date:	10/07/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2145604-01	SS-FIREINV-01-08232021	SOIL	3875 RIVER RD TONAWANDA	08/25/21 08:30	08/25/21
L2145604-02	SS-FIREINV-02-08232021	SOIL	3875 RIVER RD TONAWANDA	08/25/21 08:30	08/25/21
L2145604-03	SD-FIREINV-03-08232021	SOLID	3875 RIVER RD TONAWANDA	08/25/21 08:30	08/25/21
L2145604-04	AQ-FIREINV-04-08232021	WATER	3875 RIVER RD TONAWANDA	08/25/21 08:30	08/25/21
L2145604-05	FIELD BLANK	WATER	3875 RIVER RD TONAWANDA	08/25/21 00:00	08/25/21

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

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**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Case Narrative (continued)

#### Report Submission

October 07, 2021: This final report includes the results of all requested analyses.

September 17, 2021: This is a preliminary report

September 16, 2021: This is a preliminary report.

September 09, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

#### Sample Receipt

The analyses performed were specified by the client.

L2145604-05: A sample identified as "FIELD BLANK" was received, but not listed on the Chain of Custody. At the client's request, this sample was not analyzed.

#### Perfluorinated Alkyl Acids by Isotope Dilution

L2145604-01, -02 and -04RE: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

L2145604-02: The MeOH fraction of the extraction is reported for Perfluorooctanesulfonamide (FOSA) due to better extraction efficiency of the M8FOSA Surrogate (Extracted Internal Standard).

L2145604-04: The sample was centrifuged and decanted prior to extraction due to sample matrix.

L2145604-04: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

L2145604-04: The extracted internal standard recovery was below 10% for n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-nmefosaa) (6%); however, the criteria were achieved upon re-extraction at lesser extraction volume within holding time. The results of the re-extraction are reported for the associated target analytes only.



**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Case Narrative (continued)

#### Perfluorinated Alkyl Acids by Isotope Dilution (Post-Treatment)

Samples L2145604-01 and 02 were originally oxidized utilizing 2g of material. During re-extraction, 2g was again oxidized, however only 1ml aliquot from the 10mL of MeOH was utilized for extraction (typical extraction utilizes a 5mL aliquot).

Sample L2145604-03 was originally oxidized utilizing 0.25g of material. During re-extraction, 0.25g was again oxidized, however only a 1mL aliquot from the 10mL of the MeOH was utilized for extraction (typical extraction utilizes a 5mL aliquot).

The lower volumes utilized will result in reporting limits that are 2x and 10x higher than typical for samples 01 and 02, and 16x and 80x higher than typical for sample 03.

Oxidation was not achieved for the samples (the negative control recovered greater than 90%, where oxidation is determined by a negative control recovery of less than 25%).

The amount of organic material present in these samples make them unsuitable for the TOP oxidation process.

#### SPLP Perfluorinated Alkyl Acids by Isotope Dilution

L2145604-01 and -02 were extracted with the method required holding time exceeded.

WG1552613-5: This blank represents the SPLP tumbling blank associated with L2145604-01 and -02.

#### Total Metals

L2145604-01, -02 and -03: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

L2145604-03 and -04: The sample has an elevated detection limit for mercury due to the dilution required to quantitate the result within the calibration range.

The WG1541312-3 MS recoveries for calcium (130%) and iron (10%), performed on L2145604-04, do not apply because the sample concentrations are greater than four times the spike amounts added.

The WG1541312-3 MS recoveries, performed on L2145604-04, are outside the acceptance criteria for selenium (0%) and silver (22%). A post digestion spike was performed and was within acceptance criteria.

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Case Narrative (continued)

#### Cyanide, Total

The WG1541387-2 LCS recovery for cyanide, total (74%), associated with L2145604-01 through -03, is outside our in-house acceptance criteria, but within the vendor-certified acceptance limits. The results of the original analyses are reported.

The WG1541448-4 MS recovery, performed on L2145604-04, is outside the acceptance criteria for cyanide, total (0%); however, the associated LCS recovery is within criteria. No further action was taken.

The WG1541387-3 Laboratory Duplicate RPD for cyanide, total (41%), performed on L2145604-01, is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

The WG1541448-3 Laboratory Duplicate RPD for cyanide, total (60%), performed on L2145604-04, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Title: Technical Director/Representative

Date: 10/07/21

# ORGANICS

# SEMIVOLATILES

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-01  
 Client ID: SS-FIREINV-01-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Soil  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 10/05/21 23:20  
 Analyst: SG  
 Percent Solids: 68%  
 TCLP/SPLP Ext. Date: 09/28/21 15:08

Extraction Method: ALPHA 23528  
 Extraction Date: 09/30/21 08:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>SPLP Perfluorinated Alkyl Acids by Isotope Dilution &amp; EPA 1312 - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	10.1		ng/l	1.81	0.370	1
Perfluoropentanoic Acid (PFPeA)	37.0		ng/l	1.81	0.359	1
Perfluorobutanesulfonic Acid (PFBS)	0.446	J	ng/l	1.81	0.216	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.81	0.409	1
Perfluorohexanoic Acid (PFHxA)	21.5		ng/l	1.81	0.297	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.81	0.222	1
Perfluoroheptanoic Acid (PFHpA)	8.02		ng/l	1.81	0.204	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.81	0.340	1
Perfluorooctanoic Acid (PFOA)	1.72	J	ng/l	1.81	0.214	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.81	1.21	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.81	0.623	1
Perfluorononanoic Acid (PFNA)	0.315	J	ng/l	1.81	0.283	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.81	0.456	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.81	0.275	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.81	1.10	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/l	1.81	1.01	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.81	0.587	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.81	0.236	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.81	0.888	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.81	0.525	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.81	0.728	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.81	0.337	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.81	0.296	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.81	0.225	1

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-01  
 Client ID: SS-FIREINV-01-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	94		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	82		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	104		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	64		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	68		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	83		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	118		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	79		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	81		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	71		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	114		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	57		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	74		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	11		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	61		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	68		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	75		22-136

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-01  
 Client ID: SS-FIREINV-01-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Soil  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 09/01/21 21:36  
 Analyst: SG  
 Percent Solids: 68%

Extraction Method: ALPHA 23528  
 Extraction Date: 09/01/21 08:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	0.307	J	ng/g	1.43	0.065	1
Perfluoropentanoic Acid (PFPeA)	0.696	J	ng/g	1.43	0.132	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.715	0.112	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	2.86	0.184	1
Perfluorohexanoic Acid (PFHxA)	0.640	J	ng/g	1.43	0.150	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	2.86	0.239	1
Perfluoroheptanoic Acid (PFHpA)	0.266	J	ng/g	0.715	0.129	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.715	0.173	1
Perfluorooctanoic Acid (PFOA)	0.369	J	ng/g	0.715	0.120	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	1.43	0.513	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	1.43	0.390	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.715	0.214	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.715	0.372	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.715	0.192	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	1.43	0.821	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	2.86	0.855	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	1.43	0.576	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	1.43	0.134	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	1.43	0.438	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	1.43	0.280	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	1.43	0.242	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	1.43	0.200	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	1.43	0.585	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	1.43	0.154	1

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-01  
 Client ID: SS-FIREINV-01-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	97		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	85		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	98		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	109		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	102		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	77		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	104		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	18		10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	94		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	99		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	89		24-159



**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-02  
 Client ID: SS-FIREINV-02-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Soil  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 10/05/21 23:53  
 Analyst: SG  
 Percent Solids: 72%  
 TCLP/SPLP Ext. Date: 09/28/21 15:08

Extraction Method: ALPHA 23528  
 Extraction Date: 09/30/21 08:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>SPLP Perfluorinated Alkyl Acids by Isotope Dilution &amp; EPA 1312 - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	2.84		ng/l	1.84	0.376	1
Perfluoropentanoic Acid (PFPeA)	21.0		ng/l	1.84	0.365	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.84	0.219	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.84	0.416	1
Perfluorohexanoic Acid (PFHxA)	13.1		ng/l	1.84	0.302	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.84	0.226	1
Perfluoroheptanoic Acid (PFHpA)	4.09		ng/l	1.84	0.207	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.84	0.346	1
Perfluorooctanoic Acid (PFOA)	0.656	J	ng/l	1.84	0.217	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.84	1.23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.84	0.634	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.84	0.287	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.84	0.464	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.84	0.280	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.84	1.12	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/l	1.84	1.03	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.597	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.240	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.84	0.903	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.84	0.534	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.84	0.741	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.343	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.301	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.228	1

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-02  
 Client ID: SS-FIREINV-02-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	98		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	79		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	74		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	67		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	71		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	77		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	93		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	81		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	79		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	74		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	95		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	50		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	74		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	68		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	63		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	70		22-136

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-02  
 Client ID: SS-FIREINV-02-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Soil  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 09/01/21 21:52  
 Analyst: SG  
 Percent Solids: 72%

Extraction Method: ALPHA 23528  
 Extraction Date: 09/01/21 08:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	1.16	0.053	1
Perfluoropentanoic Acid (PFPeA)	0.340	J	ng/g	1.16	0.107	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.580	0.091	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	2.32	0.150	1
Perfluorohexanoic Acid (PFHxA)	0.305	J	ng/g	1.16	0.122	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	2.32	0.194	1
Perfluoroheptanoic Acid (PFHpA)	0.186	J	ng/g	0.580	0.105	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.580	0.140	1
Perfluorooctanoic Acid (PFOA)	0.132	J	ng/g	0.580	0.097	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.475	J	ng/g	1.16	0.417	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	1.16	0.317	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.580	0.174	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.580	0.302	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.580	0.156	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	1.16	0.666	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	2.32	0.694	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	1.16	0.468	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	1.16	0.109	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	1.16	0.355	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	1.16	0.196	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	1.16	0.162	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	1.16	0.475	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	1.16	0.125	1

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-02  
 Client ID: SS-FIREINV-02-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	93		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	80		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	91		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	96		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	91		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	98		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	97		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	108		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	65		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	93		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	59		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	48		24-159

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-02  
 Client ID: SS-FIREINV-02-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 09/02/21 18:37  
 Analyst: RS  
 Percent Solids: 72%

Extraction Method: ALPHA 23528  
 Extraction Date: 09/01/21 08:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab</b>						
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	1.16	0.227	1
<b>Surrogate (Extracted Internal Standard)</b>			<b>% Recovery</b>	<b>Qualifier</b>	<b>Acceptance Criteria</b>	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)			74		10-117	

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-03  
 Client ID: SD-FIREINV-03-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Solid  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 09/03/21 04:59  
 Analyst: HT  
 Percent Solids: 41%

Extraction Method: ALPHA 23528  
 Extraction Date: 09/02/21 08:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	22.4	1.02	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	22.4	2.06	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	11.2	1.75	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	44.8	2.89	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	22.4	2.35	1
Perfluoropentanesulfonic Acid (PFPeS)	4.48	JF	ng/g	44.8	3.74	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	11.2	2.02	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	11.2	2.71	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	11.2	1.88	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	22.4	8.04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	22.4	6.11	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	11.2	3.36	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	11.2	5.82	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	11.2	3.00	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	22.4	12.8	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	44.8	13.4	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	22.4	9.02	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	22.4	2.10	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	22.4	6.85	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	22.4	4.39	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	22.4	3.78	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	22.4	3.13	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	22.4	9.16	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	22.4	2.42	1

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-03  
 Client ID: SD-FIREINV-03-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	83		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	83		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	72		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	69		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	86		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	78		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	110		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	74		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	86		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	80		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	102		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	76		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	79		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	85		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	81		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		24-159

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-04  
 Client ID: AQ-FIREINV-04-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Water  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 08/31/21 13:26  
 Analyst: HT

Extraction Method: ALPHA 23528  
 Extraction Date: 08/31/21 04:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	27.7		ng/l	1.94	0.396	1
Perfluoropentanoic Acid (PFPeA)	9.56	G	ng/l	1.94	0.384	1
Perfluorobutanesulfonic Acid (PFBS)	6.18	F	ng/l	1.94	0.231	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	1.80	JF	ng/l	1.94	0.439	1
Perfluorohexanoic Acid (PFHxA)	22.8		ng/l	1.94	0.318	1
Perfluoropentanesulfonic Acid (PFPeS)	6.74	F	ng/l	1.94	0.238	1
Perfluoroheptanoic Acid (PFHpA)	5.20		ng/l	1.94	0.219	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.94	0.365	1
Perfluorooctanoic Acid (PFOA)	6.80		ng/l	1.94	0.229	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.94	1.29	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.94	0.668	1
Perfluorononanoic Acid (PFNA)	0.963	J	ng/l	1.94	0.303	1
Perfluorooctanesulfonic Acid (PFOS)	18.4	F	ng/l	1.94	0.489	1
Perfluorodecanoic Acid (PFDA)	0.839	J	ng/l	1.94	0.295	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.94	1.18	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/l	1.94	1.09	1
Perfluoroundecanoic Acid (PFUnA)	0.357	J	ng/l	1.94	0.252	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.94	0.952	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.94	0.563	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.94	0.781	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.94	0.361	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.94	0.318	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.94	0.241	1



**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-04  
 Client ID: AQ-FIREINV-04-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	74		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	91		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	<b>151</b>	Q	12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	65		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	89		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	82		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	<b>240</b>	Q	14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	117		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	86		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	68		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	114		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	<b>6</b>	Q	24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	58		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	41		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	87		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	68		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		22-136

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-04 RE  
 Client ID: AQ-FIREINV-04-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 134,LCMSMS-ID  
 Analytical Date: 09/03/21 06:55  
 Analyst: HT

Extraction Method: ALPHA 23528  
 Extraction Date: 09/02/21 09:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab</b>						
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	20.0	6.48	1
<b>Surrogate (Extracted Internal Standard)</b>			<b>% Recovery</b>	<b>Qualifier</b>	<b>Acceptance Criteria</b>	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)			39		24-116	

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 08/31/21 12:53  
Analyst: HT

Extraction Method: ALPHA 23528  
Extraction Date: 08/31/21 04:35

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1541005-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.452
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.245
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.66	J	ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	1.12
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 08/31/21 12:53  
Analyst: HT

Extraction Method: ALPHA 23528  
Extraction Date: 08/31/21 04:35

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1541005-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	113		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	55		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	89		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	91		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	79		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	101		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	53		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	86		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	99		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87		22-136

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/01/21 21:02  
Analyst: SG

Extraction Method: ALPHA 23528  
Extraction Date: 09/01/21 08:53

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-02 Batch: WG1541552-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.500	0.023
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.500	0.046
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.250	0.039
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.00	0.065
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.500	0.053
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.00	0.084
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.250	0.045
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.250	0.061
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.250	0.042
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.500	0.180
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.500	0.136
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.250	0.075
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.250	0.130
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.250	0.067
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.500	0.287
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	1.00	0.299
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.500	0.202
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.500	0.047
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.500	0.153
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.500	0.085
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.500	0.070
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.500	0.204
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.500	0.054

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/01/21 21:02  
Analyst: SG

Extraction Method: ALPHA 23528  
Extraction Date: 09/01/21 08:53

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-02 Batch: WG1541552-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	84		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	75		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	83		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	86		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	90		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	87		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	101		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	75		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	39		10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		24-159

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/02/21 18:22  
Analyst: RS

Extraction Method: ALPHA 23528  
Extraction Date: 09/01/21 08:53

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-02 Batch: WG1541552-1					
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	98		10-117

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/03/21 04:26  
Analyst: HT

Extraction Method: ALPHA 23528  
Extraction Date: 09/02/21 08:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 03 Batch: WG1542066-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.500	0.023
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.500	0.046
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.250	0.039
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.00	0.065
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.500	0.053
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.00	0.084
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.250	0.045
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.250	0.061
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.250	0.042
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.500	0.180
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.500	0.136
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.250	0.075
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.250	0.130
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.250	0.067
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.500	0.287
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	1.00	0.299
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.500	0.202
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.500	0.047
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.500	0.153
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.500	0.085
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.500	0.070
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.500	0.204
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.500	0.054



**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/03/21 04:26  
Analyst: HT

Extraction Method: ALPHA 23528  
Extraction Date: 09/02/21 08:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 03 Batch: WG1542066-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	89		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	55		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	84		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	85		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	99		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	89		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	66		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	54		10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	97		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	84		24-159

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/03/21 06:22  
Analyst: HT

Extraction Method: ALPHA 23528  
Extraction Date: 09/02/21 09:44

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1542119-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.452
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.245
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	1.12
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/03/21 06:22  
Analyst: HT

Extraction Method: ALPHA 23528  
Extraction Date: 09/02/21 09:44

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1542119-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	93		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	107		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	105		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	61		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	88		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	101		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	102		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	94		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	94		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	93		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	84		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	27		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	90		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	86		22-136

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 09/07/21 18:36  
Analyst: RS

Extraction Method: ALPHA 23528  
Extraction Date: 09/02/21 09:44

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1542119-1					
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	67		10-112

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 10/05/21 22:30  
Analyst: SG  
TCLP/SPLP Extraction Date: 09/28/21 15:08

Extraction Method: ALPHA 23528  
Extraction Date: 09/30/21 08:25

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-02 Batch: WG1552613-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.452
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.245
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	1.12
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 10/05/21 22:30  
Analyst: SG  
TCLP/SPLP Extraction Date: 09/28/21 15:08

Extraction Method: ALPHA 23528  
Extraction Date: 09/30/21 08:25

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-02 Batch: WG1552613-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	107		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	71		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	74		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	78		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	85		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	94		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	90		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	68		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	69		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	84		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		22-136

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 10/05/21 22:47  
Analyst: SG  
TCLP/SPLP Extraction Date: 09/28/21 15:08

Extraction Method: ALPHA 23528  
Extraction Date: 09/30/21 08:25

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-02 Batch: WG1552613-5					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.78	0.362
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.78	0.352
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	0.211
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.78	0.402
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.78	0.291
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.78	0.218
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	0.200
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	0.334
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	0.210
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.78	1.18
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.78	0.611
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	0.277
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	0.448
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	0.270
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.78	1.08
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.78	0.995
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.576
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.231
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.871
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.515
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.714
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.330
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.291
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.220

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID  
Analytical Date: 10/05/21 22:47  
Analyst: SG  
TCLP/SPLP Extraction Date: 09/28/21 15:08

Extraction Method: ALPHA 23528  
Extraction Date: 09/30/21 08:25

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-02 Batch: WG1552613-5					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	72		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	95		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	69		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	63		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	69		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	80		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	90		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	90		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	111		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	61		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	90		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	23		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	69		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	95		22-136



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS	Qual	LCS	Qual	%Recovery	RPD	Qual	RPD
	%Recovery		%Recovery		Limits			Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1541005-2								
Perfluorobutanoic Acid (PFBA)	119		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	115		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	116		-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	139		-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	120		-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	106		-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	118		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	122		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	121		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	126		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	128		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	119		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	126		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	124		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	160		-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	119		-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	132		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	119		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	128		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	121		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	127		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	122		-		67-153	-		30

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1541005-2									
Perfluorotridecanoic Acid (PFTrDA)	126		-		48-158		-		30
Perfluorotetradecanoic Acid (PFTA)	123		-		59-182		-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	89				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	104				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	54				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	83				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	84				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	96				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	94				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	89				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	91				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	79				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	76				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	90				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	58				10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	100				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	86				22-136

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 Batch: WG1541552-2								
Perfluorobutanoic Acid (PFBA)	95		-		71-135	-		30
Perfluoropentanoic Acid (PFPeA)	93		-		69-132	-		30
Perfluorobutanesulfonic Acid (PFBS)	95		-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	101		-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	98		-		70-132	-		30
Perfluoropentanesulfonic Acid (PFPeS)	98		-		73-123	-		30
Perfluoroheptanoic Acid (PFHpA)	93		-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	94		-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	97		-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	105		-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	98		-		70-132	-		30
Perfluorononanoic Acid (PFNA)	94		-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	103		-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	96		-		69-133	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	102		-		65-137	-		30
Perfluorononanesulfonic Acid (PFNS)	94		-		69-125	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	101		-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	98		-		64-136	-		30
Perfluorodecanesulfonic Acid (PFDS)	92		-		59-134	-		30
Perfluorooctanesulfonamide (FOSA)	92		-		67-137	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	96		-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	98		-		69-135	-		30

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 Batch: WG1541552-2								
Perfluorotridecanoic Acid (PFTrDA)	115		-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	94		-		69-133	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	89				61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	88				58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93				74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	83				14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	85				66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	89				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	96				78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89				75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	99				20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	89				72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96				79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	94				75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	106				19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	78				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97				61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	40				10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	80				34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91				54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	67				24-159

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 Batch: WG1541552-2								
Perfluorooctanesulfonamide (FOSA)	120		-		67-137	-		30

<b>Surrogate (Extracted Internal Standard)</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	106				10-117

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 Batch: WG1542066-2								
Perfluorobutanoic Acid (PFBA)	109		-		71-135	-		30
Perfluoropentanoic Acid (PFPeA)	110		-		69-132	-		30
Perfluorobutanesulfonic Acid (PFBS)	108		-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	127		-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	111		-		70-132	-		30
Perfluoropentanesulfonic Acid (PFPeS)	94		-		73-123	-		30
Perfluoroheptanoic Acid (PFHpA)	108		-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	106		-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	109		-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	118		-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	115		-		70-132	-		30
Perfluorononanoic Acid (PFNA)	106		-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	113		-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	110		-		69-133	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	122		-		65-137	-		30
Perfluorononanesulfonic Acid (PFNS)	105		-		69-125	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	117		-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	100		-		64-136	-		30
Perfluorodecanesulfonic Acid (PFDS)	116		-		59-134	-		30
Perfluorooctanesulfonamide (FOSA)	121		-		67-137	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	98		-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	119		-		69-135	-		30

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 Batch: WG1542066-2								
Perfluorotridecanoic Acid (PFTrDA)	122		-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	116		-		69-133	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	89				61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	91				58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104				74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	61				14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	87				66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	104				78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94				75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	102				20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97				72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99				79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98				75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	99				19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	105				61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	55				10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	78				34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	100				54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	89				24-159

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1542119-2								
Perfluorobutanoic Acid (PFBA)	108		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	107		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	106		-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	130		-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	110		-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	97		-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	106		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	111		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	108		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	120		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	111		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	103		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	111		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	106		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	133		-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	105		-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	113		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	106		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	111		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	113		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	105		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	112		-		67-153	-		30



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1542119-2									
Perfluorotridecanoic Acid (PFTrDA)	120		-		48-158		-		30
Perfluorotetradecanoic Acid (PFTA)	118		-		59-182		-		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	96				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	112				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	109				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	64				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	101				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	109				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	99				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	97				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	81				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	51				10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	80				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	103				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87				22-136

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1542119-2								
Perfluorooctanesulfonamide (FOSA)	124		-		46-170	-		30

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	71				10-112

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1552613-2								
Perfluorobutanoic Acid (PFBA)	98		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	96		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	97		-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	97		-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	100		-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	93		-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	96		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	97		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	97		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	99		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	101		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	95		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	92		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	95		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	104		-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	101		-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	95		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	100		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	99		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	102		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	92		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	100		-		67-153	-		30

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1552613-2								
Perfluorotridecanoic Acid (PFTrDA)	113		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	97		-		59-182	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	86				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	109				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	74				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	75				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	80				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	84				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	91				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	88				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	112				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	75				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	86				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36				10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	78				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	92				22-136

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541005-3 QC Sample: L2146278-01 Client ID: MS Sample												
Perfluorobutanoic Acid (PFBA)	ND	36.3	42.7	118		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	ND	36.3	41.2	114		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	ND	32.2	37.8	117		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	34	46.8	138		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	ND	36.3	44.2	122		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	34.1	37.4	110		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	36.3	42.3	117		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	33.2	40.5	122		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	0.560J	36.3	42.4	115		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.35J	34.5	45.6	128		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	34.5	46.1	133		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	ND	36.3	42.5	117		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	4.11	33.7	43.8	118		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	ND	36.3	41.9	115		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	34.8	51.5	148		-	-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	34.9	40.6	116		-	-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	36.3	45.2	125		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	36.3	42.5	117		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35	44.0	126		-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	36.3	50.2	138		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	36.3	40.0	110		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	36.3	47.4	131		-	-		67-153	-		30

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541005-3 QC Sample: L2146278-01 Client ID: MS Sample												
Perfluorotridecanoic Acid (PFTTrDA)	ND	36.3	48.6	134		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTTA)	ND	36.3	46.3	128		-	-		59-182	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	354	575F	163	Q	-	-		57-162	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	34.2	40.1	117		-	-		69-143	-		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	36.3	51.4	142		-	-		40-167	-		30
Perfluorooctadecanoic Acid (PFODA)	ND	36.3	21.6	60		-	-		10-119	-		30

<i>Surrogate</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	48				10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	37				12-142
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	58				14-147
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	72				10-165
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	57				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	55				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	76				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	70				62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	62				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	64				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	93				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	84				22-136
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	98				10-206

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541005-3 QC Sample: L2146278-01 Client ID: MS Sample												

<i>Surrogate</i>	<i>MS</i>		<i>MSD</i>		<i>Acceptance Criteria</i>
	<i>% Recovery</i>	<i>Qualifier</i>	<i>% Recovery</i>	<i>Qualifier</i>	
Perfluoro[13C4]Butanoic Acid (MPFBA)	66				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	78				62-163
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	13				10-112
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	86				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	69				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	70				59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93				70-131

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1541552-3 QC Sample: L2146387-01 Client ID: MS Sample												
Perfluorobutanoic Acid (PFBA)	ND	4.81	4.67	97		-	-		71-135	-		30
Perfluoropentanoic Acid (PFPeA)	ND	4.81	4.55	95		-	-		69-132	-		30
Perfluorobutanesulfonic Acid (PFBS)	ND	4.28	4.10	96		-	-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	4.51	4.50	100		-	-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	0.059J	4.81	4.75	97		-	-		70-132	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	4.81	4.59	95		-	-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	4.4	4.23	96		-	-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	0.270	4.81	4.99	98		-	-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	4.58	4.49	98		-	-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	4.58	4.21	92		-	-		70-132	-		30
Perfluorononanoic Acid (PFNA)	ND	4.81	4.49	93		-	-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	3.99	4.47	8.20	94		-	-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	0.099J	4.81	4.82	98		-	-		69-133	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	4.62	4.93	107		-	-		65-137	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	4.81	4.82	100		-	-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	4.81	4.76	99		-	-		64-136	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	4.64	4.57	99		-	-		59-134	-		30
Perfluorooctanesulfonamide (FOSA)	0.135JF	4.81	4.67	94		-	-		67-137	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.57	4.81	5.71	86		-	-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	ND	4.81	4.61	96		-	-		69-135	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	4.81	5.41	112		-	-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	4.81	4.79	100		-	-		69-133	-		30



## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1541552-3 QC Sample: L2146387-01 Client ID: MS Sample												
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	46.9	78.7	168	Q	-	-		41-165	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	4.54	3.96	87		-	-		68-143	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	4.49	3.59	80		-	-		67-139	-		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	4.54	3.32	73		-	-		51-155	-		30

<i>Surrogate (Extracted Internal Standard)</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	313	Q			19-175
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	219	Q			14-167
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	276	Q			20-154
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	97				10-203
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	159	Q			34-137
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	130				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	103				61-155
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98				75-130
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81				66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	86				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	101				78-139
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	104				54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	93				24-159
Perfluoro[13C4]Butanoic Acid (MPFBA)	92				61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	97				58-150

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<b>Parameter</b>	<b>Native Sample</b>	<b>MS Added</b>	<b>MS Found</b>	<b>MS %Recovery</b>	<b>MS Qual</b>	<b>MSD Found</b>	<b>MSD %Recovery</b>	<b>MSD Qual</b>	<b>Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1541552-3 QC Sample: L2146387-01 Client ID: MS Sample												

<b>Surrogate (Extracted Internal Standard)</b>	<b>MS</b>		<b>MSD</b>		<b>Acceptance Criteria</b>
	<b>% Recovery</b>	<b>Qualifier</b>	<b>% Recovery</b>	<b>Qualifier</b>	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	42				10-117
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	105				79-136
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93				75-130
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	99				72-140
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97				74-139

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1542066-3 QC Sample: L2145604-03 Client ID: SD-FIREINV-03-08232021												
Perfluorobutanoic Acid (PFBA)	ND	205	224	109		-	-		71-135	-		30
Perfluoropentanoic Acid (PFPeA)	ND	205	224	109		-	-		69-132	-		30
Perfluorobutanesulfonic Acid (PFBS)	ND	182	197	108		-	-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	192	245	128		-	-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	ND	205	228	111		-	-		70-132	-		30
Perfluoropentanesulfonic Acid (PFPeS)	4.48JF	193	188	95		-	-		73-123	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	205	219	107		-	-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	188	201	107		-	-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	ND	205	223	109		-	-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	195	225	115		-	-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	195	212	108		-	-		70-132	-		30
Perfluorononanoic Acid (PFNA)	ND	205	218	106		-	-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	ND	190	217	114		-	-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	ND	205	230	112		-	-		69-133	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	197	240	122		-	-		65-137	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	197	204	103		-	-		69-125	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	205	218	106		-	-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	205	205	100		-	-		64-136	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	198	210	106		-	-		59-134	-		30
Perfluorooctanesulfonamide (FOSA)	ND	205	239	116		-	-		67-137	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	205	198	97		-	-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	ND	205	249	121		-	-		69-135	-		30

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1542066-3 QC Sample: L2145604-03 Client ID: SD-FIREINV-03-08232021												
Perfluorotridecanoic Acid (PFTrDA)	ND	205	243	118		-	-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	205	231	113		-	-		69-133	-		30

<i>Surrogate (Extracted Internal Standard)</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	103				19-175
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	82				14-167
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	111				20-154
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	88				34-137
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUOA)	82				61-155
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	84				75-130
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	78				66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	94				78-139
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88				54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	82				24-159
Perfluoro[13C4]Butanoic Acid (MPFBA)	87				61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	87				58-150
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30				10-117
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	90				79-136
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86				75-130
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	81				72-140
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	99				74-139

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1542119-3 QC Sample: L2146011-01 Client ID: MS Sample												
Perfluorobutanoic Acid (PFBA)	ND	35.8	39.1	109		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	ND	35.8	39.2	109		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	ND	31.8	34.5	108		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	33.5	41.4	123		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	ND	35.8	40.3	112		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	33.7	33.5	100		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	35.8	38.1	106		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	32.7	35.8	109		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	0.262J	35.8	39.7	110		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	34.1	41.9	123		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	34.1	40.5	119		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	ND	35.8	38.5	107		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	1.11J	33.2	38.9	114		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	ND	35.8	39.2	109		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	34.4	42.1	122		-	-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	34.5	35.3	102		-	-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	35.8	43.2	121		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	35.8	35.2	98		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	34.5	36.9	107		-	-		38-156	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.8	34.6	97		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	35.8	40.0	112		-	-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	35.8	41.6	116		-	-		48-158	-		30

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1542119-3 QC Sample: L2146011-01 Client ID: MS Sample												
Perfluorotetradecanoic Acid (PFTA)	ND	35.8	40.3	112		-	-		59-182	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	349	449F	129		-	-		57-162	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	33.8	34.2	101		-	-		69-143	-		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	35.8	46.4	130		-	-		40-167	-		30
Perfluorooctadecanoic Acid (PFODA)	ND	35.8	14.6	41		-	-		10-119	-		30

<i>Surrogate</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	75				10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	49				12-142
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	77				14-147
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	72				10-165
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	69				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	58				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	86				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	78				62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	59				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	61				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	84				22-136
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	83				10-206
Perfluoro[13C4]Butanoic Acid (MPFBA)	61				58-132

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<b>Parameter</b>	<b>Native Sample</b>	<b>MS Added</b>	<b>MS Found</b>	<b>MS %Recovery</b>	<b>Qual</b>	<b>MSD Found</b>	<b>MSD %Recovery</b>	<b>Qual</b>	<b>Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
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Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1542119-3 QC Sample: L2146011-01 Client ID: MS Sample

<b>Surrogate</b>	<b>MS % Recovery</b>	<b>MS Qualifier</b>	<b>MSD % Recovery</b>	<b>MSD Qualifier</b>	<b>Acceptance Criteria</b>
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	74				62-163
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	94				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	69				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76				59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101				70-131

## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1552613-3 QC Sample: L2145604-01 Client ID: SS-FIREINV-01-08232021												
Perfluorobutanoic Acid (PFBA)	10.1	35.2	44.5	98		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	37.0	35.2	70.7	96		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	0.446J	31.3	31.1	98		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	33	32.6	99		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	21.5	35.2	55.8	97		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	33.1	29.3	88		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	8.02	35.2	41.9	96		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	32.2	30.8	96		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	1.72J	35.2	36.0	97		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	33.6	33.2	99		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	33.6	35.5	106		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	0.315J	35.2	35.0	98		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	ND	32.7	31.3	96		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	ND	35.2	34.6	98		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	33.8	32.1	95		-	-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	33.9	33.7	99		-	-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	35.2	33.3	94		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	35.2	34.9	99		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	34	33.6	99		-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	35.2	34.2F	97		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.2	34.9	99		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	35.2	38.0	108		-	-		67-153	-		30



## Matrix Spike Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1552613-3 QC Sample: L2145604-01 Client ID: SS-FIREINV-01-08232021												
Perfluorotridecanoic Acid (PFTTrDA)	ND	35.2	40.7	115		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTTA)	ND	35.2	33.4	95		-	-		59-182	-		30

<i>Surrogate (Extracted Internal Standard)</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	123				10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	116				12-142
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	124				14-147
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	58				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	60				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUADA)	74				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	74				62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	62				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	66				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	82				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	65				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	76				22-136
Perfluoro[13C4]Butanoic Acid (MPFBA)	74				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	90				62-163
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	11				10-112
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	81				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	74				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76				59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	82				70-131

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541005-4 QC Sample: L2146278-02 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	ND	ND	ng/l	NC		30
Perfluoropentanoic Acid (PFPeA)	0.463J	ND	ng/l	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	0.800J	0.220J	ng/l	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.43J	ng/l	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	0.310J	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	3.96	0.537J	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541005-4 QC Sample: L2146278-02 Client ID: DUP Sample						
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	ND	ng/l	NC		30
Perfluorooctadecanoic Acid (PFODA)	ND	ND	ng/l	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	46	Q	54	Q	58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	55	Q	67		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		98		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	33		36		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	44	Q	54	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	50	Q	56	Q	60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	100		103		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	57	Q	64		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	55		61		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	62		66		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		94		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	62		67		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	50		55		10-162

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541005-4 QC Sample: L2146278-02 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	49		48		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	70		76		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	8	Q	9	Q	10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	43		45		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	74		82		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		82		22-136
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	63		71		10-165
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	85		89		10-206

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1541552-4 QC Sample: L2146387-02 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	ND	ND	ng/g	NC		30
Perfluoropentanoic Acid (PFPeA)	ND	ND	ng/g	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/g	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/g	NC		30
Perfluorohexanoic Acid (PFHxA)	0.078J	0.102J	ng/g	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/g	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/g	NC		30
Perfluorooctanoic Acid (PFOA)	0.278	0.270J	ng/g	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/g	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/g	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/g	NC		30
Perfluorooctanesulfonic Acid (PFOS)	1.21	1.44	ng/g	17		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/g	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/g	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/g	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/g	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/g	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	0.119JF	ng/g	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.16	2.77	ng/g	25		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/g	NC		30

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1541552-4 QC Sample: L2146387-02 Client ID: DUP Sample						
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/g	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/g	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/g	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/g	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/g	NC		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/g	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	100		98		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	105		103		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	106		104		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	<b>243</b>	Q	<b>244</b>	Q	14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		88		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		92		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	109		108		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		98		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	<b>310</b>	Q	<b>321</b>	Q	20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		105		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	112		110		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	108		103		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	<b>350</b>	Q	<b>378</b>	Q	19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	<b>148</b>	Q	<b>146</b>	Q	31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUdA)	114		108		61-155

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1541552-4 QC Sample: L2146387-02 Client ID: DUP Sample						

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	50		46		10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	<b>179</b>	Q	<b>167</b>	Q	34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	110		105		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	99		97		24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	112		118		10-203

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1542066-4 QC Sample: L2145657-02 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	2.94	2.96	ng/g	1		30
Perfluoropentanoic Acid (PFPeA)	2.96	2.79	ng/g	6		30
Perfluorobutanesulfonic Acid (PFBS)	ND	0.162JF	ng/g	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/g	NC		30
Perfluorohexanoic Acid (PFHxA)	0.891J	0.742J	ng/g	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/g	NC		30
Perfluoroheptanoic Acid (PFHpA)	0.812	0.441J	ng/g	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/g	NC		30
Perfluorooctanoic Acid (PFOA)	1.01	0.591J	ng/g	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/g	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/g	NC		30
Perfluorononanoic Acid (PFNA)	0.324J	0.213J	ng/g	NC		30
Perfluorooctanesulfonic Acid (PFOS)	1.06F	0.876F	ng/g	19		30
Perfluorodecanoic Acid (PFDA)	0.189J	0.185J	ng/g	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/g	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/g	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/g	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/g	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/g	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/g	NC		30



## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1542066-4 QC Sample: L2145657-02 Client ID: DUP Sample						
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/g	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/g	NC		30
Perfluorotridecanoic Acid (PFTTrDA)	ND	ND	ng/g	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/g	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/g	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/g	NC		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	ND	ng/g	NC		30
Perfluorooctadecanoic Acid (PFODA)	ND	ND	ng/g	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	92		92		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	95		96		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	117		115		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	<b>201</b>	Q	<b>195</b>	Q	14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81		81		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		81		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	109		110		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		98		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	<b>323</b>	Q	<b>313</b>	Q	20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	103		102		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		107		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		99		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	<b>289</b>	Q	<b>274</b>	Q	19-175

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1542066-4 QC Sample: L2145657-02 Client ID: DUP Sample						

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	114		120		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	108		104		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	72		64		10-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	<b>160</b>	Q	<b>168</b>	Q	34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	94		91		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	93		92		24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	160		154		10-203
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	63		72		10-145

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1542119-4 QC Sample: L2146011-02 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	15.2	16.4	ng/l	8		30
Perfluoropentanoic Acid (PFPeA)	1.01J	1.32J	ng/l	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	0.502J	0.547JF	ng/l	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	0.367J	0.565J	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	0.526J	0.778J	ng/l	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/l	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1542119-4 QC Sample: L2146011-02 Client ID: DUP Sample						
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	ND	ng/l	NC		30
Perfluorooctadecanoic Acid (PFODA)	ND	ND	ng/l	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	62		54	Q	58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	76		64		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	105		100		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	48		44		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	58		50	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	60		52	Q	60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	96		91		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	67		59	Q	62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	77		70		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	72		62		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		87		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	73		64		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	70		60		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	62		43		24-116

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1542119-4 QC Sample: L2146011-02 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	82		71		55-137
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	53		45		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	80		79		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	82		78		22-136
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	75		60		10-165
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	85		80		10-206

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1552613-4 QC Sample: L2145604-02 Client ID: SS-FIREINV-02-08232021						
Perfluorobutanoic Acid (PFBA)	2.84	2.81	ng/l	1		30
Perfluoropentanoic Acid (PFPeA)	21.0	20.6	ng/l	2		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	13.1	12.7	ng/l	3		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	4.09	4.04	ng/l	1		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	0.656J	0.603J	ng/l	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/l	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30

## Lab Duplicate Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1552613-4 QC Sample: L2145604-02 Client ID: SS-FIREINV-02-08232021						
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		87		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	98		109		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	79		90		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	74		90		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	67		74		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	71		79		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	77		89		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76		87		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	93		109		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	81		91		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	79		89		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	74		84		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	95		117		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	50		75		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	74		89		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		27		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	68		69		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	63		81		48-131

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1552613-4 QC Sample: L2145604-02 Client ID: SS-FIREINV-02-08232021						

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	70		84		22-136



# METALS

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-01  
 Client ID: SS-FIREINV-01-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Aluminum, Total	6540		mg/kg	11.3	3.06	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Antimony, Total	3.01	J	mg/kg	5.66	0.430	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Arsenic, Total	19.9		mg/kg	1.13	0.236	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Barium, Total	101		mg/kg	1.13	0.197	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Beryllium, Total	0.566		mg/kg	0.566	0.037	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Cadmium, Total	ND		mg/kg	1.13	0.111	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Calcium, Total	23800		mg/kg	11.3	3.96	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Chromium, Total	58.4		mg/kg	1.13	0.109	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Cobalt, Total	6.52		mg/kg	2.26	0.188	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Copper, Total	106		mg/kg	1.13	0.292	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Iron, Total	26800		mg/kg	5.66	1.02	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Lead, Total	177		mg/kg	5.66	0.304	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Magnesium, Total	3220		mg/kg	11.3	1.74	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Manganese, Total	375		mg/kg	1.13	0.180	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Mercury, Total	2.42		mg/kg	0.101	0.066	1	08/31/21 20:25	09/01/21 17:47	EPA 7471B	1,7471B	OU
Nickel, Total	30.4		mg/kg	2.83	0.274	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Potassium, Total	1070		mg/kg	283	16.3	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Selenium, Total	1.90	J	mg/kg	2.26	0.292	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Silver, Total	ND		mg/kg	1.13	0.321	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Sodium, Total	619		mg/kg	226	3.57	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Thallium, Total	ND		mg/kg	2.26	0.357	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Vanadium, Total	16.1		mg/kg	1.13	0.230	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV
Zinc, Total	260		mg/kg	5.66	0.332	2	08/27/21 22:15	09/08/21 15:39	EPA 3050B	1,6010D	SV

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-02  
 Client ID: SS-FIREINV-02-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Aluminum, Total	1640		mg/kg	10.4	2.82	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Antimony, Total	1.63	J	mg/kg	5.23	0.397	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Arsenic, Total	6.62		mg/kg	1.04	0.217	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Barium, Total	36.7		mg/kg	1.04	0.182	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Beryllium, Total	0.178	J	mg/kg	0.523	0.035	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Cadmium, Total	ND		mg/kg	1.04	0.102	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Calcium, Total	6020		mg/kg	10.4	3.66	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Chromium, Total	23.8		mg/kg	1.04	0.100	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Cobalt, Total	2.36		mg/kg	2.09	0.174	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Copper, Total	58.9		mg/kg	1.04	0.270	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Iron, Total	15300		mg/kg	5.23	0.944	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Lead, Total	61.9		mg/kg	5.23	0.280	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Magnesium, Total	852		mg/kg	10.4	1.61	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Manganese, Total	147		mg/kg	1.04	0.166	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Mercury, Total	0.362		mg/kg	0.096	0.063	1	08/31/21 20:25	09/01/21 17:51	EPA 7471B	1,7471B	OU
Nickel, Total	17.8		mg/kg	2.61	0.253	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Potassium, Total	204	J	mg/kg	261	15.0	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Selenium, Total	0.868	J	mg/kg	2.09	0.270	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Silver, Total	ND		mg/kg	1.04	0.296	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Sodium, Total	98.4	J	mg/kg	209	3.29	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Thallium, Total	ND		mg/kg	2.09	0.329	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Vanadium, Total	4.46		mg/kg	1.04	0.212	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV
Zinc, Total	85.4		mg/kg	5.23	0.306	2	08/27/21 22:15	09/08/21 15:43	EPA 3050B	1,6010D	SV

**Project Name:** RITC**Lab Number:** L2145604**Project Number:** POST FIRE PFAS**Report Date:** 10/07/21**SAMPLE RESULTS**

Lab ID: L2145604-03

Date Collected: 08/25/21 08:30

Client ID: SD-FIREINV-03-08232021

Date Received: 08/25/21

Sample Location: 3875 RIVER RD TONAWANDA

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: 41%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Aluminum, Total	302		mg/kg	18.7	5.06	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Antimony, Total	7.68	J	mg/kg	9.36	0.712	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Arsenic, Total	31.3		mg/kg	1.87	0.390	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Barium, Total	2.27		mg/kg	1.87	0.326	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Beryllium, Total	ND		mg/kg	0.936	0.062	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Cadmium, Total	ND		mg/kg	1.87	0.184	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Calcium, Total	2650		mg/kg	18.7	6.56	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Chromium, Total	147		mg/kg	1.87	0.180	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Cobalt, Total	8.73		mg/kg	3.75	0.311	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Copper, Total	5.41		mg/kg	1.87	0.483	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Iron, Total	710000		mg/kg	468	84.6	100	08/27/21 22:15	09/08/21 17:23	EPA 3050B	1,6010D	SV
Lead, Total	79.8		mg/kg	9.36	0.502	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Magnesium, Total	846		mg/kg	18.7	2.88	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Manganese, Total	6850		mg/kg	1.87	0.298	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Mercury, Total	1080		mg/kg	87.0	56.7	500	08/31/21 20:25	09/02/21 18:28	EPA 7471B	1,7471B	NB
Nickel, Total	22.2		mg/kg	4.68	0.453	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Potassium, Total	ND		mg/kg	468	27.0	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Selenium, Total	ND		mg/kg	3.75	0.483	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Silver, Total	1.68	J	mg/kg	1.87	0.530	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Sodium, Total	65.8	J	mg/kg	375	5.90	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Thallium, Total	4.27		mg/kg	3.75	0.590	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Vanadium, Total	305		mg/kg	1.87	0.380	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV
Zinc, Total	50.0		mg/kg	9.36	0.549	2	08/27/21 22:15	09/08/21 15:47	EPA 3050B	1,6010D	SV

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

Lab ID: L2145604-04  
 Client ID: AQ-FIREINV-04-08232021  
 Sample Location: 3875 RIVER RD TONAWANDA

Date Collected: 08/25/21 08:30  
 Date Received: 08/25/21  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Aluminum, Total	2.74		mg/l	0.100	0.032	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Antimony, Total	ND		mg/l	0.050	0.007	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Arsenic, Total	0.021		mg/l	0.005	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Barium, Total	0.112		mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Beryllium, Total	ND		mg/l	0.005	0.001	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Cadmium, Total	ND		mg/l	0.005	0.001	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Calcium, Total	227		mg/l	0.100	0.035	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Chromium, Total	0.023		mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Cobalt, Total	0.008	J	mg/l	0.020	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Copper, Total	ND		mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Iron, Total	68.7		mg/l	0.050	0.009	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Lead, Total	0.047		mg/l	0.010	0.003	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Magnesium, Total	40.3		mg/l	0.100	0.015	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Manganese, Total	6.69		mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Mercury, Total	0.08833		mg/l	0.00200	0.00091	2	09/01/21 13:28	09/01/21 17:31	EPA 7470A	1,7470A	OU
Nickel, Total	0.029		mg/l	0.025	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Potassium, Total	51.1		mg/l	2.50	0.237	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Selenium, Total	ND		mg/l	0.010	0.004	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Silver, Total	ND		mg/l	0.007	0.003	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Sodium, Total	47.2		mg/l	2.00	0.120	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Thallium, Total	0.003	J	mg/l	0.020	0.003	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Vanadium, Total	ND		mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD
Zinc, Total	0.194		mg/l	0.050	0.002	1	09/01/21 12:59	09/08/21 15:08	EPA 3005A	1,6010D	GD

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

## Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1539996-1										
Aluminum, Total	ND		mg/kg	4.00	1.08	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Antimony, Total	ND		mg/kg	2.00	0.152	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Arsenic, Total	ND		mg/kg	0.400	0.083	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Barium, Total	ND		mg/kg	0.400	0.070	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Beryllium, Total	ND		mg/kg	0.200	0.013	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Cadmium, Total	ND		mg/kg	0.400	0.039	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Calcium, Total	ND		mg/kg	4.00	1.40	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Chromium, Total	0.092	J	mg/kg	0.400	0.038	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Cobalt, Total	ND		mg/kg	0.800	0.066	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Copper, Total	ND		mg/kg	0.400	0.103	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Iron, Total	0.452	J	mg/kg	2.00	0.361	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Lead, Total	ND		mg/kg	2.00	0.107	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Magnesium, Total	ND		mg/kg	4.00	0.616	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Manganese, Total	0.088	J	mg/kg	0.400	0.064	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Nickel, Total	ND		mg/kg	1.00	0.097	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Potassium, Total	ND		mg/kg	100	5.76	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Selenium, Total	ND		mg/kg	0.800	0.103	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Silver, Total	ND		mg/kg	0.400	0.113	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Sodium, Total	6.33	J	mg/kg	80.0	1.26	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Thallium, Total	ND		mg/kg	0.800	0.126	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Vanadium, Total	ND		mg/kg	0.400	0.081	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV
Zinc, Total	ND		mg/kg	2.00	0.117	1	08/27/21 22:15	09/08/21 13:57	1,6010D	SV

### Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 04 Batch: WG1541312-1										
Aluminum, Total	ND		mg/l	0.100	0.032	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Antimony, Total	ND		mg/l	0.050	0.007	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Arsenic, Total	ND		mg/l	0.005	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

### Method Blank Analysis Batch Quality Control

Barium, Total	ND	mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Beryllium, Total	ND	mg/l	0.005	0.001	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Cadmium, Total	ND	mg/l	0.005	0.001	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Calcium, Total	ND	mg/l	0.100	0.035	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Chromium, Total	ND	mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Cobalt, Total	ND	mg/l	0.020	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Copper, Total	ND	mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Iron, Total	ND	mg/l	0.050	0.009	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Lead, Total	ND	mg/l	0.010	0.003	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Magnesium, Total	ND	mg/l	0.100	0.015	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Manganese, Total	ND	mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Nickel, Total	ND	mg/l	0.025	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Potassium, Total	ND	mg/l	2.50	0.237	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Selenium, Total	ND	mg/l	0.010	0.004	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Silver, Total	ND	mg/l	0.007	0.003	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Sodium, Total	ND	mg/l	2.00	0.120	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Thallium, Total	ND	mg/l	0.020	0.003	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Vanadium, Total	ND	mg/l	0.010	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD
Zinc, Total	ND	mg/l	0.050	0.002	1	09/01/21 12:59	09/08/21 14:45	1,6010D	GD

#### Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 04 Batch: WG1541318-1									
Mercury, Total	ND	mg/l	0.00020	0.00009	1	09/01/21 13:28	09/01/21 17:05	1,7470A	OU

#### Prep Information

Digestion Method: EPA 7470A

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1541378-1									
Mercury, Total	ND	mg/kg	0.083	0.054	1	08/31/21 20:25	09/01/21 17:27	1,7471B	OU

### Prep Information

Digestion Method: EPA 7471B



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1539996-2 SRM Lot Number: D109-540								
Aluminum, Total	71		-		50-150	-		
Antimony, Total	100		-		19-250	-		
Arsenic, Total	107		-		70-130	-		
Barium, Total	103		-		75-125	-		
Beryllium, Total	108		-		75-125	-		
Cadmium, Total	104		-		75-125	-		
Calcium, Total	101		-		73-128	-		
Chromium, Total	104		-		70-130	-		
Cobalt, Total	106		-		75-125	-		
Copper, Total	109		-		75-125	-		
Iron, Total	94		-		35-165	-		
Lead, Total	102		-		72-128	-		
Magnesium, Total	90		-		62-138	-		
Manganese, Total	101		-		74-126	-		
Nickel, Total	106		-		70-130	-		
Potassium, Total	92		-		59-141	-		
Selenium, Total	109		-		68-132	-		
Silver, Total	104		-		68-131	-		
Sodium, Total	76		-		35-165	-		
Thallium, Total	104		-		68-131	-		
Vanadium, Total	94		-		59-141	-		

**Lab Control Sample Analysis**  
Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>LCSD %Recovery</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>RPD Limits</b>
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1539996-2 SRM Lot Number: D109-540					
Zinc, Total	104	-	70-130	-	

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04 Batch: WG1541312-2					
Aluminum, Total	94	-	80-120	-	
Antimony, Total	93	-	80-120	-	
Arsenic, Total	108	-	80-120	-	
Barium, Total	102	-	80-120	-	
Beryllium, Total	93	-	80-120	-	
Cadmium, Total	100	-	80-120	-	
Calcium, Total	99	-	80-120	-	
Chromium, Total	98	-	80-120	-	
Cobalt, Total	97	-	80-120	-	
Copper, Total	100	-	80-120	-	
Iron, Total	96	-	80-120	-	
Lead, Total	100	-	80-120	-	
Magnesium, Total	98	-	80-120	-	
Manganese, Total	91	-	80-120	-	
Nickel, Total	93	-	80-120	-	
Potassium, Total	99	-	80-120	-	
Selenium, Total	106	-	80-120	-	
Silver, Total	96	-	80-120	-	
Sodium, Total	104	-	80-120	-	
Thallium, Total	102	-	80-120	-	
Vanadium, Total	101	-	80-120	-	

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04 Batch: WG1541312-2					
Zinc, Total	104	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 04 Batch: WG1541318-2					
Mercury, Total	103	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1541378-2 SRM Lot Number: D109-540					
Mercury, Total	90	-	60-140	-	

## Matrix Spike Analysis Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03    QC Batch ID: WG1539996-3    WG1539996-4    QC Sample: L2145722-03    Client ID: MS Sample												
Aluminum, Total	10100	256	11300	469	Q	12100	790	Q	75-125	7		20
Antimony, Total	0.359J	63.9	26.0	41	Q	22.1	35	Q	75-125	16		20
Arsenic, Total	17.5	15.3	34.7	112		32.4	98		75-125	7		20
Barium, Total	73.9	256	315	94		318	96		75-125	1		20
Beryllium, Total	0.674	6.39	6.45	90		6.34	90		75-125	2		20
Cadmium, Total	ND	6.78	4.82	71	Q	4.69	70	Q	75-125	3		20
Calcium, Total	1620	1280	2700	84		2810	94		75-125	4		20
Chromium, Total	13.7	25.6	36.9	91		36.6	90		75-125	1		20
Cobalt, Total	14.3	63.9	66.9	82		68.3	85		75-125	2		20
Copper, Total	24.5	32	56.2	99		56.0	100		75-125	0		20
Iron, Total	34100	128	38900	3750	Q	42200	6400	Q	75-125	8		20
Lead, Total	26.9	67.8	85.9	87		85.2	87		75-125	1		20
Magnesium, Total	2840	1280	4070	96		4080	98		75-125	0		20
Manganese, Total	234	63.9	290	88		309	118		75-125	6		20
Nickel, Total	23.6	63.9	75.6	81		75.9	83		75-125	0		20
Potassium, Total	577	1280	1760	92		1740	92		75-125	1		20
Selenium, Total	0.233J	15.3	13.9	90		13.1	86		75-125	6		20
Silver, Total	ND	38.4	34.5	90		33.7	89		75-125	2		20
Sodium, Total	38.9J	1280	1220	95		1190	94		75-125	2		20
Thallium, Total	ND	15.3	12.2	79		11.8	78		75-125	3		20
Vanadium, Total	15.3	63.9	71.5	88		70.5	87		75-125	1		20

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1539996-3 WG1539996-4 QC Sample: L2145722-03 Client ID: MS Sample									
Zinc, Total	111	63.9	174	98	182	112	75-125	4	20

## Matrix Spike Analysis Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04    QC Batch ID: WG1541312-3    QC Sample: L2145604-04    Client ID: AQ-FIREINV-04-08232021									
Aluminum, Total	2.74	2	4.64	95	-	-	75-125	-	20
Antimony, Total	ND	0.5	0.392	78	-	-	75-125	-	20
Arsenic, Total	0.021	0.12	0.153	110	-	-	75-125	-	20
Barium, Total	0.112	2	2.14	101	-	-	75-125	-	20
Beryllium, Total	ND	0.05	0.047	94	-	-	75-125	-	20
Cadmium, Total	ND	0.053	0.051	97	-	-	75-125	-	20
Calcium, Total	227	10	240	130	Q	-	75-125	-	20
Chromium, Total	0.023	0.2	0.214	95	-	-	75-125	-	20
Cobalt, Total	0.008J	0.5	0.485	97	-	-	75-125	-	20
Copper, Total	ND	0.25	0.202	81	-	-	75-125	-	20
Iron, Total	68.7	1	68.8	10	Q	-	75-125	-	20
Lead, Total	0.047	0.53	0.556	96	-	-	75-125	-	20
Magnesium, Total	40.3	10	50.1	98	-	-	75-125	-	20
Manganese, Total	6.69	0.5	7.19	100	-	-	75-125	-	20
Nickel, Total	0.029	0.5	0.480	90	-	-	75-125	-	20
Potassium, Total	51.1	10	62.2	111	-	-	75-125	-	20
Selenium, Total	ND	0.12	ND	0	Q	-	75-125	-	20
Silver, Total	ND	0.05	0.011	22	Q	-	75-125	-	20
Sodium, Total	47.2	10	58.5	113	-	-	75-125	-	20
Thallium, Total	0.003J	0.12	0.093	78	-	-	75-125	-	20
Vanadium, Total	ND	0.5	0.500	100	-	-	75-125	-	20

### Matrix Spike Analysis Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits		
Total Metals - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541312-3 QC Sample: L2145604-04 Client ID: AQ-FIREINV-04-08232021											
Zinc, Total	0.194	0.5	0.708	103	-	-	75-125	-	20		
Total Metals - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541318-3 QC Sample: L2146320-30 Client ID: MS Sample											
Mercury, Total	ND	0.005	0.00493	99	-	-	75-125	-	20		
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1541378-3 WG1541378-4 QC Sample: L2146526-01 Client ID: MS Sample											
Mercury, Total	0.057J	0.167	0.210	125	Q	0.207	129	Q	80-120	1	20



## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541312-4 QC Sample: L2145604-04 Client ID: AQ-FIREINV-04-08232021						
Aluminum, Total	2.74	2.79	mg/l	2		20
Antimony, Total	ND	0.018J	mg/l	NC		20
Arsenic, Total	0.021	0.020	mg/l	1		20
Barium, Total	0.112	0.115	mg/l	3		20
Beryllium, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Calcium, Total	227	230	mg/l	1		20
Chromium, Total	0.023	0.023	mg/l	0		20
Cobalt, Total	0.008J	0.008J	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Iron, Total	68.7	69.5	mg/l	1		20
Lead, Total	0.047	0.048	mg/l	2		20
Magnesium, Total	40.3	41.0	mg/l	2		20
Manganese, Total	6.69	6.77	mg/l	1		20
Nickel, Total	0.029	0.029	mg/l	0		20
Potassium, Total	51.1	51.8	mg/l	1		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Sodium, Total	47.2	47.6	mg/l	1		20

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541312-4 QC Sample: L2145604-04 Client ID: AQ-FIREINV-04-08232021					
Thallium, Total	0.003J	ND	mg/l	NC	20
Vanadium, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.194	0.195	mg/l	1	20
Total Metals - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1541318-4 QC Sample: L2146320-30 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

**Lab Serial Dilution  
Analysis  
Batch Quality Control**

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1539996-6 QC Sample: L2145722-03 Client ID: DUP Sample						
Aluminum, Total	10100	10300	mg/kg	2		20
Calcium, Total	1620	1900	mg/kg	17		20
Magnesium, Total	2840	3390	mg/kg	19		20
Manganese, Total	234	266	mg/kg	14		20

# **INORGANICS & MISCELLANEOUS**

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

**Lab ID:** L2145604-01  
**Client ID:** SS-FIREINV-01-08232021  
**Sample Location:** 3875 RIVER RD TONAWANDA

**Date Collected:** 08/25/21 08:30  
**Date Received:** 08/25/21  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	67.9		%	0.100	NA	1	-	08/26/21 12:56	121,2540G	RI
Cyanide, Total	5.0		mg/kg	1.4	0.29	1	08/31/21 21:00	09/01/21 11:51	121,4500CN-CE	CR

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

**Lab ID:** L2145604-02  
**Client ID:** SS-FIREINV-02-08232021  
**Sample Location:** 3875 RIVER RD TONAWANDA

**Date Collected:** 08/25/21 08:30  
**Date Received:** 08/25/21  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	72.4		%	0.100	NA	1	-	08/26/21 12:56	121,2540G	RI
Cyanide, Total	1.6		mg/kg	1.3	0.28	1	08/31/21 21:00	09/01/21 11:54	121,4500CN-CE	CR

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

**Lab ID:** L2145604-03  
**Client ID:** SD-FIREINV-03-08232021  
**Sample Location:** 3875 RIVER RD TONAWANDA

**Date Collected:** 08/25/21 08:30  
**Date Received:** 08/25/21  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	40.6		%	0.100	NA	1	-	08/26/21 12:56	121,2540G	RI
Cyanide, Total	320		mg/kg	23	4.9	10	08/31/21 21:00	09/01/21 11:58	121,4500CN-CE	CR

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**SAMPLE RESULTS**

**Lab ID:** L2145604-04  
**Client ID:** AQ-FIREINV-04-08232021  
**Sample Location:** 3875 RIVER RD TONAWANDA

**Date Collected:** 08/25/21 08:30  
**Date Received:** 08/25/21  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Cyanide, Total	1.97		mg/l	0.050	0.018	10	08/31/21 20:00	09/01/21 11:06	121,4500CN-CE	CR



**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1541387-1									
Cyanide, Total	ND	mg/kg	0.92	0.19	1	08/31/21 21:00	09/01/21 11:23	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 04 Batch: WG1541448-1									
Cyanide, Total	ND	mg/l	0.005	0.001	1	08/31/21 20:00	09/01/21 10:55	121,4500CN-CE	CR

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1541387-2								
Cyanide, Total	74	Q	-		80-120	-		35
General Chemistry - Westborough Lab Associated sample(s): 04 Batch: WG1541448-2								
Cyanide, Total	101		-		90-110	-		

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1541387-4 QC Sample: L2145604-01 Client ID: SS-FIREINV-01-08232021												
Cyanide, Total	5.0	14	17	86		-	-		65-135	-		35
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1541448-4 QC Sample: L2145604-04 Client ID: AQ-FIREINV-04-08232021												
Cyanide, Total	1.97	0.2	1.90	0	Q	-	-		90-110	-		30

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1539543-1 QC Sample: L2145648-11 Client ID: DUP Sample						
Solids, Total	53.1	49.6	%	7		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1541387-3 QC Sample: L2145604-01 Client ID: SS-FIREINV-01-08232021						
Cyanide, Total	5.0	3.3	mg/kg	41	Q	35
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1541448-3 QC Sample: L2145604-04 Client ID: AQ-FIREINV-04-08232021						
Cyanide, Total	1.97	1.06	mg/l	60	Q	30

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Serial\_No:**10072116:30  
**Lab Number:** L2145604  
**Report Date:** 10/07/21

**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent
B	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2145604-01A	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2145604-01B	Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		TCN-4500(14)
L2145604-01C	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),TL-TI(180),NI-TI(180),ZN-TI(180),SE-TI(180),SB-TI(180),CU-TI(180),PB-TI(180),V-TI(180),CO-TI(180),MN-TI(180),MG-TI(180),FE-TI(180),HG-T(28),CD-TI(180),NA-TI(180),CA-TI(180),K-TI(180)
L2145604-01D	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-01E	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-01X	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-01X1	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-01X2	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-01X3	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-01X9	Tumble Vessel	NA	NA			Y	Absent		-
L2145604-02A	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2145604-02B	Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		TCN-4500(14)
L2145604-02C	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),PB-TI(180),CU-TI(180),ZN-TI(180),SE-TI(180),SB-TI(180),CO-TI(180),V-TI(180),HG-T(28),MN-TI(180),FE-TI(180),MG-TI(180),K-TI(180),CA-TI(180),CD-TI(180),NA-TI(180)
L2145604-02D	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		-
L2145604-02E	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		-
L2145604-02F	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-02X	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)

\*Values in parentheses indicate holding time in days



**Project Name:** RITC**Lab Number:** L2145604**Project Number:** POST FIRE PFAS**Report Date:** 10/07/21**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2145604-02X1	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-02X2	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-02X3	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2145604-02X9	Plastic 250ml unpreserved Extracts	NA	NA			Y	Absent		-
L2145604-03A	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2145604-03B	Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		TCN-4500(14)
L2145604-03C	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),AL-TI(180),ZN-TI(180),CU-TI(180),SE-TI(180),SB-TI(180),PB-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CD-TI(180),NA-TI(180),CA-TI(180),K-TI(180)
L2145604-03D	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-03E	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-03F	Plastic 8oz unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-04A	Plastic 250ml unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-04B	Plastic 250ml unpreserved	A	NA		2.2	Y	Absent		A2-537-ISOTOPE(14)
L2145604-04C	Plastic 250ml HNO3 preserved	A	<2	<2	2.2	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),NI-TI(180),AL-TI(180),TL-TI(180),ZN-TI(180),SB-TI(180),SE-TI(180),CU-TI(180),PB-TI(180),CO-TI(180),V-TI(180),HG-T(28),MN-TI(180),MG-TI(180),FE-TI(180),CA-TI(180),CD-TI(180),NA-TI(180),K-TI(180)
L2145604-04D	Plastic 250ml NaOH preserved	A	>12	>12	2.2	Y	Absent		TCN-4500(14)
L2145604-05A	Plastic 250ml unpreserved	B	NA		4.1	Y	Absent		HOLD-537(14)

\*Values in parentheses indicate holding time in days

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

Serial\_No:10072116:30  
**Lab Number:** L2145604  
**Report Date:** 10/07/21

### PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
<b>PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)</b>		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
<b>PERFLUOROALKYL SULFONIC ACIDS (PFSAs)</b>		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
<b>FLUOROTELOMERS</b>		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
<b>PERFLUOROALKANE SULFONAMIDES (FASAs)</b>		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
<b>PERFLUOROALKANE SULFONYL SUBSTANCES</b>		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
<b>PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS</b>		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
<b>CHLORO-PERFLUOROALKYL SULFONIC ACIDS</b>		
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
<b>PERFLUOROETHER SULFONIC ACIDS (PFESAs)</b>		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEEESA	113507-82-7
<b>PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)</b>		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

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## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



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#### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

#### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

#### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

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**Data Qualifiers**

- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

**Project Name:** RITC  
**Project Number:** POST FIRE PFAS

**Lab Number:** L2145604  
**Report Date:** 10/07/21

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene

**EPA 625/625.1:** alpha-Terpineol

**EPA 8260C/8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D/8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522, EPA 537.1.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.


**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 <b>NEW YORK CHAIN OF CUSTODY</b> Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		<b>Service Centers</b> Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 8/26/21		ALPHA Job # L2145604																																																				
		Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		<b>Project Information</b> Project Name: <u>HITC - POST FIRE PFAS</u> Project Location: <u>3875 RIVER RD TONAWANDA</u> Project # <u>POST FIRE PFAS</u> (Use Project name as Project #) <input type="checkbox"/>		<b>Deliverables</b> <input checked="" type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input checked="" type="checkbox"/> EquIS (1 File) <input type="checkbox"/> EquIS (4 File) <input type="checkbox"/> Other		<b>Billing Information</b> <input type="checkbox"/> Same as Client Info PO #																																																				
<b>Client Information</b> Client: <u>INVENTUM ENGINEERING</u> Address: <u>481 CARLISLE DR SUITE 202, HERNDON VA 20170</u> Phone: <u>585-734-5255</u> Fax: <u>ROXANNE BIRX</u> Email: <u>roxanne.birx@inventumeng.com</u>		Project Manager: <u>JOHN BLACK john.black@inventumeng.com</u> ALPHAQuote #:		<b>Regulatory Requirement</b> <input type="checkbox"/> NY TOGS <input checked="" type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		<b>Disposal Site Information</b> Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:																																																						
Turn-Around Time Standard <input type="checkbox"/> Due Date: Rush (only if pre approved) <input checked="" type="checkbox"/> # of Days: <u>5</u>		These samples have been previously analyzed by Alpha <input type="checkbox"/>		<b>ANALYSIS</b>		<b>Sample Filtration</b> <input type="checkbox"/> Done <input type="checkbox"/> Lab to do <b>Preservation</b> <input type="checkbox"/> Lab to do (Please Specify below)		Total Bottles																																																				
Other project specific requirements/comments: <u>ONE SAMPLE HAS 2 802 JARS RATHER THAN 3, CONFIRMED BY CANDY FOX THERE IS ADEQUATE VOLUME.</u>		Please specify Metals or TAL.		CYANIDE CN-E2011 TAL METALS PFAS MODIFIED 537.1 PFAS TOP ASSAY		Sample Specific Comments																																																						
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">ALPHA Lab ID (Lab Use Only)</th> <th rowspan="2">Sample ID</th> <th colspan="2">Collection</th> <th rowspan="2">Sample Matrix</th> <th rowspan="2">Sampler's Initials</th> <th rowspan="2">CYANIDE CN-E2011</th> <th rowspan="2">TAL METALS</th> <th rowspan="2">PFAS MODIFIED 537.1</th> <th rowspan="2">PFAS TOP ASSAY</th> </tr> <tr> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>45604-01</td> <td>SS-FIREINV-01-08232021</td> <td>8/25/21</td> <td>8:30</td> <td>SOIL</td> <td>RB</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>-02</td> <td>SS-FIREINV-02-08232021</td> <td>8/25/21</td> <td>8:30</td> <td>SOIL</td> <td>RB</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>-03</td> <td>SD-FIREINV-03-08232021</td> <td>8/25/21</td> <td>8:30</td> <td>SOLID</td> <td>RB</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>-04</td> <td>AG-FIREINV-04-08232021</td> <td>8/25/21</td> <td>8:30</td> <td>WATER</td> <td>RB</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> </tbody> </table>		ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials		CYANIDE CN-E2011	TAL METALS	PFAS MODIFIED 537.1	PFAS TOP ASSAY	Date	Time	45604-01	SS-FIREINV-01-08232021	8/25/21	8:30	SOIL	RB	✓	✓	✓	✓	-02	SS-FIREINV-02-08232021	8/25/21	8:30	SOIL	RB	✓	✓	✓	✓	-03	SD-FIREINV-03-08232021	8/25/21	8:30	SOLID	RB	✓	✓	✓	✓	-04	AG-FIREINV-04-08232021	8/25/21	8:30	WATER	RB	✓	✓	✓	✓	Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type Preservative		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
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-04	AG-FIREINV-04-08232021	8/25/21	8:30	WATER	RB	✓	✓	✓	✓																																																			
Preservative Code: A = None B = HCl C = HNO <sub>3</sub> D = H <sub>2</sub> SO <sub>4</sub> E = NaOH F = MeOH G = NaHSO <sub>4</sub> H = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Relinquished By: <u>ROXANNE BIRX</u> 8/25 9:15 AM <u>John Black</u> 8/25/21 13:00 <del>Wendy Manning</del> 8/26/21 4:00		Received By: <u>Am K AAC</u> 8/25/21 12:30 <u>[Signature]</u> 8/26/21 02:20																																																						